REMARKS

Status of the Claims

Claims 1-11, and 13-20 remain pending in the present application, Claim 1 having been amended to more clearly define the claimed subject matter, and Claim 12 having been currently canceled.

Claims Rejected under 35 U.S.C. § 101

The Examiner has rejected Claims 1-11 and 13 under 35 U.S.C. § 101 as being directed to non-statutory subject matter. The Examiner states that Claims 1-11 and 13 are directed to a method for reordering data between a first predefined order and a second predefined order, but do not set forth an application of the method to produce a tangible result, e.g., displaying the data.

Accordingly, applicant has canceled Claim 12 and has amended Claim 1 to recite in step (e) that the reordered data are displayed, which is disclosed in the specification, in step 84 in both FIGURES 3 and 5, i.e., "rendered data." Applicant respectfully requests that the Examiner withdraw the rejection of Claim 1. Because dependent claims inherently include all of the steps or elements of the independent claim from which the dependent claims ultimately depend, the rejection of dependent Claims 2-11 and 13 under 35 U.S.C. § 101 should be withdrawn for at least the same reasons that discussed above with regard to independent Claim 1.

Claims Rejected Under 35 U.S.C. § 103

The Examiner has rejected Claims 1-7, 12, and 13 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,960,213 (Wilson) in view of U.S. Patent No. 5,793,996 (Childers).

The Examiner has also rejected Claims 8-11 and 14-20 under 35 U.S.C. § 103(a) as being unpatentable over Wilson and Childers, in view of U.S. Patent No. 5,594,854 (Baldwin). Applicant respectfully disagrees for the following reasons.

In the interest of reducing the complexity of the issues for the Examiner to consider in this response, the following discussion focuses on independent Claims 1 and 14. The patentability of each dependent claim is not necessarily separately addressed in detail. However, applicant's decision not to discuss the differences between the cited art and each dependent claim should not be considered as an admission that applicant concurs with the Examiner's conclusion that these dependent claims are not patentable over the cited references. Similarly, applicant's decision not to

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discuss differences between the prior art and every claim element, or every comment made by the Examiner, should not be considered as an admission that applicant concurs with the Examiner's interpretation and assertions regarding those claims. Indeed, applicant believes that all of the dependent claims patentably distinguish over the references cited. However, a specific traverse of the rejection of each dependent claim is not required, since dependent claims are patentable for at least the same reasons as the independent claims from which the dependent claims ultimately depend.

Patentability of Independent Claim 1

Significant differences exist between the subject matter recited in this claim by applicant and the cited art, because the cited art does NOT teach or suggest reordering the data between the first predefined order and the second predefined order using an operation that was not provided for that purpose, as recited in the preamble and in amended step (d). Also, the cited art does NOT teach or suggest determining original positions of coordinates defining each subdivision, as recited in step (c).

It may be helpful to illustrate an example of some of the steps of applicant's claimed subject matter. As an example of the subject matter recited in the preamble, that the method of independent Claim 1 can be directed towards reordering out of order image data, (as discussed in the specification, at page 9, line 24) between a first predefined order (e.g., little endian order as discussed in the specification, at page 9, line 26) and a second predefined order (e.g., big endian order as discussed in the specification, at page 10, line 6) using a secondary processor, such as a video adapter (e.g., graphics hardware 48 of FIGURE 1) to perform the reordering, thereby offloading the reordering of the out of order image data from a primary processor (i.e., processing unit 21 of FIGURE 1), the secondary processor (i.e., video adapter (graphics hardware) 48) reordering the data (i.e., the out of order image data) between the first predefined order (i.e., little endian order) and the second predefined order (i.e., big endian order) using an operation (e.g., a texture draw command, as discussed in the specification, at page 9, lines 5-6) that was not provided for that purpose.

Furthermore, as recited in step (a), the secondary processor (i.e., video adapter (graphics hardware) 48) is enabled to access the data (i.e., out of order image data) that are arranged in the first predefined order (i.e., little endian order).

In addition, as recited in step (b), suppose that subdivisions (e.g., strips 80a-80d of FIGURE 3) of the data (i.e., the out of order image data) are determined and that these subdivisions are arranged in the first predefined order (i.e., little endian order), wherein each subdivision (i.e.,

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strips 80a-80d of FIGURE 3) is based on a predefined size (e.g., 16 bits, as discussed in the specification, at page 9, lines 24) of each datum (e.g., pixel, as discussed in the specification, at page 9, line 24) of the data (i.e., out of order image data).

As recited in step (c), suppose that original positions of coordinates (e.g., source coordinates of Table 1, specification, page 9, line 30) defining each subdivision (e.g., strips 80a-80d of FIGURE 3) within the data (e.g., out of order image data) that are arranged in the first predefined order (e.g., little endian order) are determined.

Finally, as recited in step (d), suppose that the secondary processor (i.e., video adapter (graphics hardware) 48) is caused to perform the operation (i.e., the texture draw command), which transforms the coordinates (i.e., the source coordinates) of each subdivision (i.e., strips 80a-80d of FIGURE 3) to new positions (i.e., the destination positions of Table 1) and repositions the data (i.e., the out of order image data) of each subdivision (i.e., strips 80a-80d of FIGURE 3) to have the same locations relative to the new positions (i.e., the source coordinates) as the data (i.e., the out of order image data) had relative to the original positions (i.e., the source coordinates), thereby reordering the data (i.e., the out of order image data) from the first predefined order (i.e., the little endian order) to the second predefined order (i.e., the big endian order) using the operation (i.e., the texture draw command) that was not provided for that purpose.

The prior art does not teach how to carry out the details of the example discussed above. Note that the cited art does not teach or suggest a secondary processor that *reorders* the data between a first predefined order and a second predefined order using an operation that was not provided for that purpose as recited in the preamble, and in amended step (d) of applicant's Claim 1. Instead, Wilson teaches that a *conversion* takes place. The Examiner asserts that the Delta Unit in the GLINT Delta implements data conversion for graphics primitives in one unit, the GLINT Delta accepts texture parameters, and that the operations in the Delta Unit remove a considerable amount of work from the host processor. To justify this assertion, the Examiner cites column 2, lines 43-64 of Wilson. But this portion of Wilson does not teach ***reordering*** data. The Examiner also indicates that the GLINT Delta can accept and convert gib-endian data and cites column 4, lines 20-25 and column 20, lines 4-10. Wilson discloses that the operations in the Delta Unit remove a considerable amount of work from the host processor except for transformation and lighting calculations (Wilson, column 2, lines 63-65). However, Wilson's use of the term "***convert***" (column 4, lines 24) is ambiguous. It is

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not apparent why Wilson's teaching of using a secondary processor (i.e., the Delta unit) to CONVERT data is the same as applicant's recitation of a secondary processor that is used to ***reorder*** data. Childers and Baldwin do not include a secondary processor that performs a data reordering function and therefore, they do NOT cure this deficiency.

In addition, the cited art does NOT teach or suggest determining ***original positions*** of coordinates defining each subdivision, as recited in step (c), but instead teaches determining ***addresses***. The Examiner asserts that Childers discloses this step and in support of the assertion, cites column 17, line 54-column 18, line 2, which is reproduced below:

> Also as previously mentioned, the VRAM state machines 719 support bi-endian accesses such that two separate accesses to the same physical memory location in the frame buffer can provide little endian or big endian pixels. These accesses are distinguished by their address (there is a little endian address and a separate big endian address for each byte in the frame buffer 517). Big endian addresses are distinguished from little endian addresses by adding, for example, an additional 0.times.00800000 to the memory address for big endian accesses. This addition is true, independent of the mode--both `d128` mode and `d64` mode use the same addition to distinguish big- versus little-endian pixels. Note that the address variation allows writing consecutive big and little endian pixels and that the control logic 569 supports these accesses and ensures that the correct byte lanes are written in each case. (Childers, column 17, line 54-column 18, line 2).

However, this citation does not teach or suggest coordinates like the source coordinates of Table 1. The above citation teaches determining byte addresses, which are not equivalent to coordinates defining a subdivision. In addition, applicant has noticed that with respect to the Examiner's rejection of Claim 14 (Office Action, page 15), the Examiner asserts that Baldwin teaches determining original positions of the subdivisions within the data (Baldwin, column 23, lines 20-29 and 37-51). The Baldwin citations are reproduced below:

> Internally GLINT operates in little-endian mode. However, GLINT is designed to work with both big- and little-endian host processors. Since the PCIBus specification defines that byte ordering is preserved regardless of the size of the transfer operation, GLINT provides facilities to handle byte swapping. Each of the Configuration Space, Control Space, Framebuffer Bypass and Localbuffer Bypass memory areas have both big and little endian mappings available. The mapping to use typically depends on the endian ordering of the host processor. (Baldwin, column 23, lines 20-29).

> The framebuffer bypass consists of two PCI address regions: Region 2 and Region 4. Each is independently configurable to by the Aperture0 and Aperture1 control

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registers respectively, to one of three modes: no byte swap, 16-bit swap, full byte swap. Note that the 16 bit mode is needed for the following reason. If the framebuffer is configured for 16-bit pixels and the host is big-endian then simply byte swapping is not enough when a 32-bit access is made (to write two pixels). In this case, the required effect is that the bytes are swapped within each 16-bit word, but the two 16-bit halves of the 32-bit word are not swapped. This preserves the order of the pixels that are written as well as the byte ordering within each pixel. The 16 bit mode is referred to as GIB-endian in the PCI Multimedia Design Guide, version 1.0. (Baldwin, column 23, lines 37-51).

With respect to both citations to Baldwin, notice that there is no discussion pertaining to determining coordinates.

Accordingly, the rejection of independent Claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Wilson, in view of Childers, should be withdrawn, for the reasons given above, since Wilson, in view of Childers does not teach or suggest all of the recitation of independent Claim 1.

Claims 2-13 ultimately depend from independent Claim 1. Because dependent claims inherently include all of the steps or elements of the independent claim from which the dependent claims ultimately depend, dependent Claims 2-13 are patentable for at least the same reasons discussed above with regard to independent Claim 1. Accordingly, the rejection of dependent Claims 2-13 under 35 U.S.C. § 103(a) over the combined cited art, should be withdrawn.

Patentability of Independent Claim 14

Independent Claim 14 is directed towards a system for reordering data between a first predefined order and a second predefined order using an operation not provided to the system for that purpose. Significant differences exist between the subject matter recited in the claim by applicant and the cited art, because the cited art does NOT teach or suggest reordering the data between the first predefined order and the second predefined order using an operation that was not provided for that purpose, and this function is clearly recited in the preamble and in amended step (c)(iv) of Claim 14. Further, the cited art does NOT teach or suggest determining original positions of coordinates defining each subdivision as recited in step (c)(iii). The Examiner has asserted that the cited art discloses these steps and provides similar citations to the art as provided to support the rejection of the steps of independent Claim 1. For the reasons given above in applicant's traversal of the rejection of independent Claim 1, the cited art does not teach or suggest reordering the data, and

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Wilson's use of the term "convert" is ambiguous and not reasonably perceived as teaching reordering data. Further, the determination of a byte address is not equivalent to the determination of coordinates.

Accordingly, the rejection of independent Claim 14 under 35 U.S.C. § 103(a) as being unpatentable over Wilson and Childers, in view of Baldwin, should be withdrawn, for the reasons given above, since Wilson and Childers, in view of Baldwin does not teach or suggest all of the recitation of independent Claim 1.

Claims 15-20 ultimately depend from independent Claim 14. Because dependent claims inherently include all of the steps or elements of the independent claim from which the dependent claims ultimately depend, dependent Claims 15-20 are patentable for at least the same reasons discussed above with regard to independent Claim 14. Accordingly, the rejection of dependent Claims 15-20 under 35 U.S.C. § 103(a) over Wilson and Childers, in view of Baldwin, should be withdrawn.

In view of the amendment to the claims and the Remarks set forth above, it will be apparent that the claims remaining in this application define a novel and non-obvious invention, and that the application is in condition for allowance and should be passed to issue without further delay. Should any further questions remain, the Examiner is invited to telephone applicant's attorney at the number listed below.

Respectfully submitted,

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